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ABSTRACT

The report examines the use of student activity sheets in evaluating the performance of students in the Appalachia Educational Laboratory's Employer-Based Career Education (AEL/EBCE) program. All activity sheets completed during the second semester of 1972-73 for selected participants in the following subject areas were examined and are analyzed in detail in the report: English/communications, secretarial skills, social sciences, sociology, physical and life science, and mathematics. In general the activity sheets were considered a good monitoring device in a highly flexible instructional program such as AEL/EBCE. Limitations arising from their use, however, were students' failure to comment on their assignments in the space provided and the instructional managers' mechanical repetition of assignment objectives on the sheets. The evaluation of the use of activity sheets suggests the disadvantage of adapting course work to individual student interests, the need for instructional managers' developing course outlines specifying minimum skills and understandings required of students, and the possibility of adopting a more interdisciplinary problem-centered approach to instruction. (Author/JR)

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TR 44

Employer-Based Career Education

An Investigation of the Use of Student Activity Sheets

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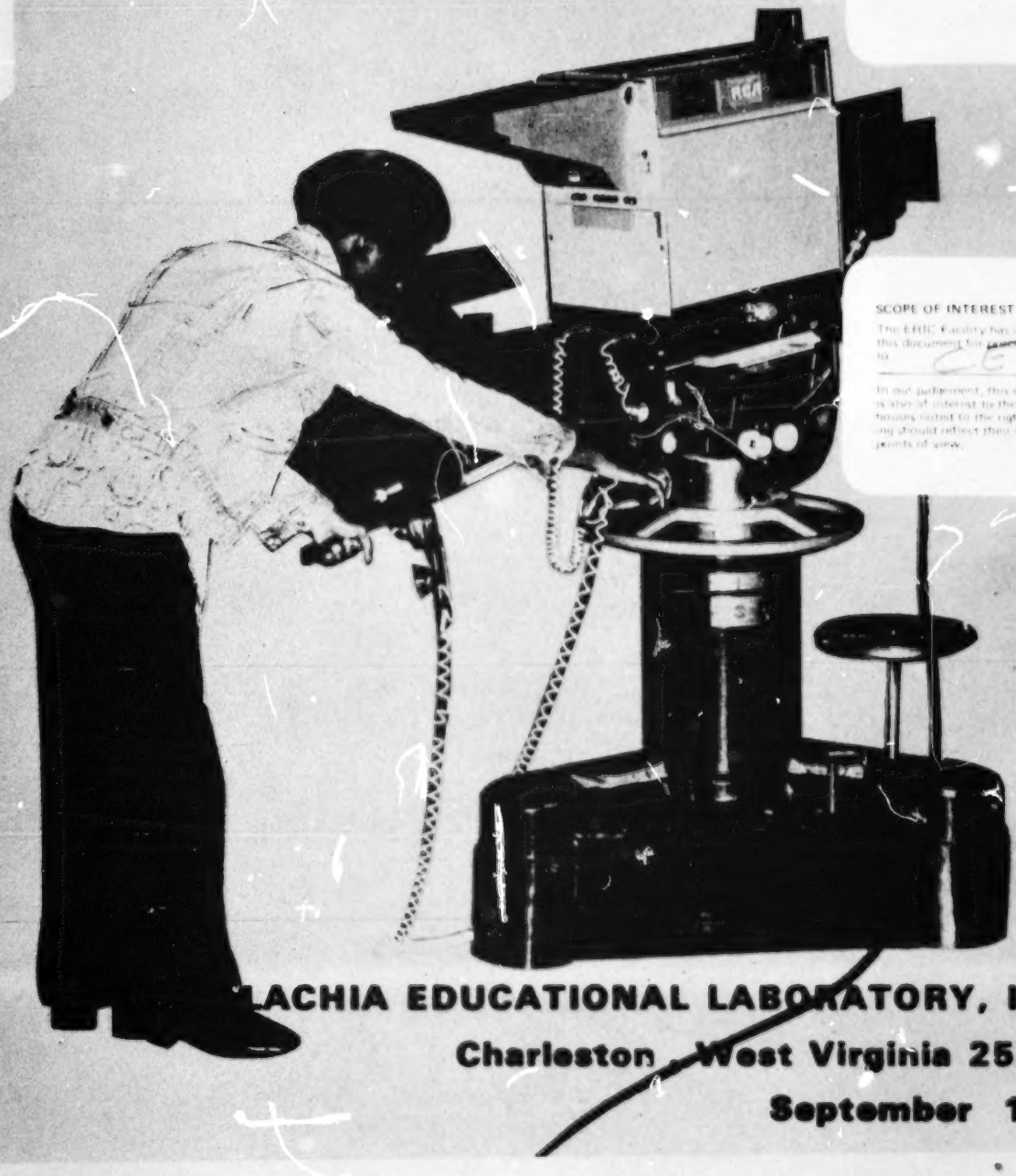

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September 1973

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Cover picture: Sam Burge, an EBCE student learns the fundamentals of operating a television camera at WMUL-TV in Nitro, West Virginia

Employer-Based Career Education

An Investigation of the Use of Student Activity Sheets

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TECHNICAL REPORT NO. 44

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Preface

The Employer-Based Career Education program (EBCE) has been conducted and evaluated by the Appalachia Educational Laboratory, Inc., during the academic year beginning September, 1972, and ending June, 1973. This technical report is one of a series resulting from the program evaluation. The focus of this report is the use of student activity sheets which were designed to record the assignment of student activities and facilitate the evaluation of the activities following their completion.

This report was prepared by Dr. John T. Seyfarth and Dr. Richard F. Meckley of the West Virginia College of Graduate Studies, under contract to the Laboratory. The EBCE evaluation was conducted and supervised by Dr. James H. Sanders, Evaluation Specialist with the Laboratory, under the general direction of Dr. Charles L. Bertram, Director of Research and Evaluation for the Laboratory. Critical reviews of early drafts of the report were provided by Ms. Karen J. Pfiffner, Associate Educational Development Specialist, and Mr. C. Steven Hyre, Associate Educational Development Specialist, of the EBCE operations and design staff.

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Introduction

Appalachia Educational Laboratory's Employer-Based Career Education (EBCE) program is an operational trial of an alternative model of career education. High school seniors from the Charleston area who volunteered for the program were given the opportunity of learning about several different occupations through on-the-job experiences. These exploratory career experiences were interspersed with academic training appropriate to the student's level and interests.

The student activity sheet is the basic record of students' academic progress. (A copy of this sheet appears in the Appendix.) For every assignment made, a duplicate of the activity sheet was prepared with one copy for the student and one for the instructional manager (or teacher). When the assignment was completed, the instructional manager entered evaluative comments and filed a copy of the activity sheet with the assignment. The activity sheet thus became part of a unique and permanent record of all work attempted by each student in a given subject area set of activities.

The purposes of this assessment were: (1) to determine whether the activity sheet adequately serves the purposes for which it is intended; and (2) to learn what the activity sheet reveals about the academic aspects of the EBCE program.

The activity sheet is intended to serve several needs. Primarily, it functions as an immediate record of assignments for the instructional manager and the student and, ultimately, as a permanent part of the program data. In an individualized program such as this, some sort of ready reference is needed, and the activity sheets serve the purpose well. Other functions of the activity sheet are to provide feedback to students and to serve as a motivator of the students.

Procedures

All activity sheets completed during the second semester for selected participants in six subject areas were examined. The subject areas were English/communications, secretarial skills, social sciences, sociology, physical and life sciences, and mathematics.

Forty-two of the 44 students in the program were enrolled in English/communications, and 21 persons were taking sociology. Twenty persons were registered for secretarial skills blocks of activities including typing, shorthand, and office practice; 17 individuals completed a variety of activities in the physical and life sciences, including biology, physics, and physiology. Fifteen students completed mathematics blocks of activities which ranged from general and business mathematics to calculus. Twelve persons took social science offerings including economics, psychology, world culture, American studies, and American history. Three students completed activities in speech.

Two sampling procedures were used. With English and sociology a random procedure was employed. Eight students were selected randomly from among the 42 persons taking English, and eight were drawn from among the 21 in sociology. For the remaining four subject areas (secretarial skills, physical and life sciences, social sciences, and mathematics), the selection procedure was varied so as to include all activities in each area. Where possible, the students selected were ones who had not been drawn in one of the earlier samples.

All assignments for each student in the sample were examined by one of two evaluators, neither of whom was associated with the AEL/EBCE program. Characteristics of interest were: number of assignments completed; clarity of assignments; length of time allowed for completion; evidence that student

ability and level of achievement were taken into account (individualization); evidence that an effort was made to relate the classwork to the student's job placement and the student' interests and goals (relevance); evidence that the instructional manager provided feedback to the students following completion of the assignment; comprehensiveness of the work covered (scope); and evidence of an orderly progression in the subject from less complex to more complex concepts and skills (sequence).

In some cases, a four-point scale was used to rate assignments on one or more of the variables of interest. Ratings of 1 represented little or no evidence of the factor (low) and ratings of 4, extensive evidence of the factor (high). The intermediate ratings fell between the extremes.

In the sections which follow, a brief summary of findings for each subject area studied is presented.

Results

English/Communications

Randomly selected records of eight students were examined. They averaged 13.6 assignments each, a total of 109. The range in number of assignments for the semester was 10 to 17. Eleven assignment types were observed. Report writing was the most frequently used, constituting slightly more than half of all assignments. Other types were answering questions (11 percent) and research (10 percent). Table 1 summarizes these findings.

Most assignments were due within three to seven days. The greatest length of time allowed for the completion of one assignment averaged 14.1 days. The incidence of late assignments was low.

Table 2 reports on the ratings for clarity, relevance, and individualization. The ratings were based on a four-point scale on which 1 was low and

Table 1

English Assignment Types and Frequency of Use

Type	Number of Assignments	Percentage of Total
Report Writing	57	52
Answering Questions	12	11
Research	11	10
Preparing or Giving Speech	7	6
Letters and Memos	5	5
Autobiographical	4	4
Non-Writing Assignments	4	4
Creative Writing	3	3
Spelling Vocabulary Practice	3	3
Interview	2	2
Journalistic Reporting	1	1
Total	109	101

Table 2

Average Rating of English Assignments on Clarity, Relevance, and Individualization by Student

	Student Number								
Dimension	1	2	3	4	5	6	7	8	Ave.
Clarity	3.6	3.3	3.5	3.5	3.4	3.2	3.4	3.6	3.4
Relevance	2.6	2.4	3.0	2.5	3.4	3.1	2.7	2.8	2.8
Individualization	2.3	1.5	2.3	2.2	1.4	1.6	2.0	1.1	1.8

*Ratings based on four-point scale in which 4 is high and 1 is low.

4 high. The highest overall average (3.4) was attained on the dimension of clarity. The average rating for relevance for all assignments was 2.8, and for individualization 1.8.

There was considerable variance in the frequency with which the instructional manager provided written evaluative comments. One student had comments on 80 percent of all assignments, and at the other extreme two persons received comments on only about one-fifth of the assignments. The Spearman rank-order correlation of the total number of assignments completed with the percentage containing feedback was .21 (N.S.).

Science

Records of eight students were reviewed. The students were selected to include all of the science courses offered in the program. These courses were: Biology I and II, Physiology, Environmental Science, Physical Science, Mathematics in Chemistry, and Physics. Table 3 presents the findings related to the number of assignments in each course and ratings on clarity and individualization as well as the evaluator's comments on each specialty. The fact that seven different course offerings in the field of physical and life sciences were scheduled for a total of only 17 students is evidence in itself of relevance. In addition, where there was evidence that a student's classwork was related to his job placement, note is made of that fact in the Comments section of Table 3.

Feedback was provided by the teacher for most assignments, but the quality and specificity of the comments varied.

Generally, the students and teachers seemed to work together reasonably well in identifying areas of interest in connection with the various scientific disciplines to be studied. The assignments for the most part were clear and

Table 3

Ratings and Comments on Science Assignments in Seven Fields

Subject	Number of Students	Number of Assignments	Clarity**	Individualization**	Comments
Biology I	1	7	1.0	1.0	Assignments were textbook-oriented, routine, and minimally carried out. Student evidenced a lack of interest which the teacher could not completely overcome.
Biology II	1	7	2.0	2.0	Value of the assignments appeared to diminish with time. The first assignment was of greater depth and suggested more areas of inquiry to the student. At the conclusion of the term, the student was doing such things as routine visits to the pharmacy to ask about vaccines.
Physiology	2	8.5*	2.5*	2.0*	Some specific goals very broad. One day and one filmstrip would hardly cover drug abuse. For one student, assignments concentrated on embryonic development, and omitted many aspects of physiology. The sequence for that student, however was good. In the case of the other student, some assignments were related to the job assignment. However, coverage strayed from physiology into psychology and sociology. Fundamental aspects of physiology were not covered. Assignments were not sequentially related.
Env. Science	1	4	4.0	4.0	Assignments were close to student interest while they also covered the general objects rather adequately. Evidence of original work and high motivation on the part of the student. The strip mining aspects of the assignment were related to student's interest in politics and his part-time assignment.
Physical Science	1	7	3.0	2.0	The assignments, although not very demanding, did tend to follow the student's interests as he stated them. Primarily his activities consisted of maintaining an aquarium and learning a few techniques of scientific observation and measurement related to that activity. The reports on some assignments did not reveal much insight into the scientific concept under study.
Math in Chemistry	1	9	3.0	4.0	Assignments indicated that the student was meeting the objective of applying mathematical concepts to chemical problems in a very adequate manner. Except for logarithms, the student seemed to learn and understand the various mathematical processes involved and their specific relationships to chemistry.
Physics	1	8	2.0	2.0	Some assignments were not realistic with respect to time allowed for completion. An example was "to be able to understand the place of the space program in our society." Although the student undoubtedly learned important concepts in his area of interest, there was a question whether satisfactory conceptualizing and theory building in the discipline could have occurred.

* Averages

** Ratings are on a four-point scale on which 4 is high and 1 is low.

unambiguous and capable of being carried out within prescribed times. To some extent the assignments involved use of community resources in addition to standard textbooks.

It must be said, however, that considerable emphasis was placed on short-term reading assignments which sometimes only involved the student copying the answer to the so-called objective from a textbook. More emphasis on theory building would have helped students assimilate knowledge gained in carrying out assignments. Perhaps the initial phases of course work might include an overall review of some of the important concepts to be covered. At least the student should be given a fairly comprehensive overview of the field in order that he will understand that he is concentrating on only one or two aspects of it and that all parts are to some degree inter-related.

Mathematics

Eight students were selected to represent the various specialities taught. The subjects were: general mathematics, business mathematics, mathematical analysis, algebra review, college algebra, trigonometry, and calculus. Two students were chosen from general math, and one from each of the other fields. A total of 15 students were registered for credit in mathematics, and the sample represented more than half of the total.

For the most part, the assignments were judiciously chosen and were related to stated learning objectives. There was evidence of considerable time and energy spent by the teacher on individual student diagnosis and prescription. The assignments were personalized and it seems apparent that the teacher spent considerable time in motivating students and maintaining their interest. It is commendable that the teacher checked the assigned

work carefully and then reviewed it soon after with the student. This kind of feedback was necessary and valuable as the students attempted to learn various mathematical concepts and processes.

The individualized approach used in the mathematical assignments is good except for the tendency to neglect sequence and scope. As alluded to in the evaluation of science assignments, the approach leaves certain areas uncovered. This was realized by one student who chose to go back to conventional instruction in order to remedy this deficiency.

Table 4 summarizes the findings. As with science, the variety of course offerings was taken as evidence of the relevance of the curriculum in mathematics.

Sociology

Assignments completed by eight students enrolled in sociology were examined. Assignments were varied in accordance with student interests. In one case, the instructor made an effort to relate the subject to a student's expressed interest in art. This took the form of reading assignments in the area of world culture, mostly anthropological in nature and focused on the life styles of various cultures. In another case, the student's interest in crime and war became the central focus of a variety of readings and films. Whether the object was to relate the discipline to expressed interests of students, as in these examples, or to motivate students as in other cases observed, it was accomplished at the expense of the integrity of the discipline.

A variety of types of learning materials were employed in the assignments, including the usual ones. Resources available to students at the job assignment were used in some cases, and students were sent on special

Table 4

Ratings and Comments on Mathematics Assignments

	Number of Students	Number of Assignments	Clarity**	Individualization**	Comments
General Math	2	7.0*	2.5*	3.5*	Student skill level was diagnosed and work assigned accordingly. In both cases, progress toward course objectives was evident.
Business Math	1	3	2.0	3.0	Student apparently completed course in about three weeks. The last assignment on the use of fractions and ratios was incomplete. Earlier assignments were completed adequately and were related to the goals of the course as stated. The instructor spent time to relate the textbook and workbook assignments to the skills the student was seeking and apparently needed.
Mathematical Analysis	1	8	2.0	3.0	Assignments were quite varied and jumped around from model building to trigonometry to algebra to plane geometry to mechanical drawing and the like. Although the assignments seemed to follow the interests of the student, there was no common thread to them.
Algebra Review	1	-***	3.0	3.0	The student and teacher worked out a fairly good plan of review. In some cases, it consisted of using a programmed test, particularly with respect to polynomials and algebra review. Learning tapes were also used. The methods used seemed to be effective and the student seemed to meet the prescribed objectives well.
College Algebra	1	5	3.0	3.0	Through the guidance of the teacher, the student was able to cover some important components of college algebra. The assignments were related to the objectives as stated and were sufficiently challenging to ensure the necessary learning on the part of the student.
Trigonometry	1	4	3.0	3.0	The assignments appeared to be geared to the needs of the student; however, the student expressed the opinion that the limited scope was not sufficient and decided to return to the previous school for the subject. The assignments lacked the broad coverage that such a technical subject requires, especially for a student expecting to enter college.
Calculus	1	8	3.0	3.0	Work submitted seemed to indicate that the subject was reasonably well covered. The work showed a good analysis of the student's needs and deficiencies in this area and a prescribed program to meet the needs. The sequence and scope of the assignments were good.

* Averages
** Ratings are on a four-point scale on which 4 is high and 1 is low.
*** Omitted

assignments such as listening to and reporting on hearings before a committee of the State Senate.

There was no evidence that an attempt was made to help students relate what they were learning about social behavior to better understanding the social dynamics of the work groups with which they associated, although such a connection would seem to be a natural.

Table 5 summarizes findings.

Table 5

Average Rating of Sociology Assignments on Clarity, Relevance, and Individualization by Student

	Student Number								
Dimension*	1	2	3	4	5	6	7	8	Ave.
Clarity	3.0	3.0	3.0	3.0	2.0	3.0	4.0	2.0	2.9
Relevance	3.0	4.0	2.0	2.0	3.0	4.0	4.0	2.0	3.0
Individualization	2.0	1.0	3.0	2.0	2.0	1.0	2.0	3.0	2.0

*Based on four-point scale in which 4 is high and 1 is low.

Social Sciences

The records of seven students in five fields of study were reviewed. The sample was drawn to represent all of the social science subjects taught and, where possible, no student was selected who had previously been selected in one of the other samples.

All of the assignments showed a high degree of relevance. The instructional managers varied emphases, assignments, and even content in order to maximize the potential of student interest. As with the sciences, however, the gain in relevance was attained with some sacrifice of disciplinary integrity.

The amount of time allowed for completion of assignments was reasonable in every case, and the assignments appeared to be within the capabilities of the students in every case except one.

A summary of findings from the review of social science assignments appears in Table 6.

Secretarial Skills

Records of six students were received; two of the students were taking office procedures in addition to typing. The assignments were understandable, but exhibited little evidence of attention to individual weaknesses or to student interests and objectives. The mean of 7.5 assignments during the semester appears to be an overly light workload.

Most assignments were taken from a textbook, although in a few cases students were assigned a report as part of their typing assignment. In some cases, assignments were made jointly for two courses--typing and English or social studies, for example.

Office procedures assignments were limited both in scope and imagination. Only three activity sheets appeared in the folders of students in that class, and not all of them had the completed assignment attached. The assignments appeared to have little relationship either to what secretaries typically do in offices or to what students might be most interested in learning.

Conclusions

The activity sheet appears to be accomplishing the purposes for which it was designed. The need for a monitoring device in an instructional program with a high degree of flexibility is clear, and the activity sheet appears to fulfill that need.

Unfortunately, two of the most promising features of the activity sheet were neglected in actual use. Students failed to record comments about their

Table 6

Ratings and Comments on Science Assignments in Five Fields

Subject	Number of Students	Number of Assignments	Clarity**	Individualization**	Comments
American Studies	1	11	3.0	2.0	Papers submitted were terse but well written. Some of the assignments were out of place in an American Studies course. Some dealt with mental disorders, and others with such events as the rise of Hitler. The jumping around may have been done to sustain student interest.
Psychology	2	10*	3.0*	2.5*	Assignments were varied to capitalize on students' interests, and some were out of the field of psychology. One student was able to use resources of the job site in connection with work in class. There was some evidence to suggest that limitations on available resource materials restricted assignments.
Political Science	2	10.5*	2.5*	1.5*	One student's assignments seemed to center around reading various pamphlets published by AEL without an effort made to relate these documents to important political principles. The value of certain assignments, notably satirizing the Constitution, is questionable. In some cases, students were permitted to express personal biases without supporting facts and data.
World Culture	1	10	3.0	2.0	Some of the assignments, e.g., the political cartoon, appeared to be only remotely related to the field of world culture. Some assignments were relevant and stated in behavioral terms. Assignments were close to the expressed interests of the student.
Economics	1	10	2.0	3.0	There was a tendency to wander around in the general area of social studies without a focus on economics. This may have been due to the student's limited exposure. Most of the assignments were in the area of personal money management, and some of these were quite timely.

* Average

** Ratings were based on a four-point scale on which 4 is high and 1 is low.

assignments although space is provided for them on the activity sheet. Such a record would serve as a valuable source of student feedback for the teacher and help the student to develop the habit of self-evaluation.

Instructional managers varied in the extent to which they used the objectives section of the activity sheet to help relate a particular assignment to the overall objectives of the course. In some cases, the statement of objectives was mechanical and repetitive.

Some of the assignments appeared to have been dictated more by available resources than by the needs or goals of the student. The intent is not to imply criticism of instructional managers who found it necessary to work within the constraint of limited resources, but rather to suggest the need to expand these resources in the future.

There are several questions which arise from a review of this kind which cannot be answered by the evaluators, but which are brought to the attention of program management.

Although the instructional managers in the program (with perhaps one exception) were dealing with relatively few students, some of these instructional managers were attempting to guide students individually through as many as seven different subjects. Particularly in the science fields, this appears to be an overly demanding load.

The attempt to adapt course work to students' interests, while commendable, also has its disadvantages. Two students in the same subject frequently received entirely different assignments. There is no objection to different assignments, of course, as long as the unifying theoretical themes of a discipline are conveyed to the student. In some cases, there was a question whether this was happening.

There appears to be a need for instructional managers in the EBCE program, possibly with the assistance of experts from outside the organization

to develop course outlines which specify the minimum skills and understandings which will be required of students completing each block of activities. Within such limitations, the teacher would remain free to adapt assignments to student skill levels and to take advantage of the resources of the community in his or her teaching. To fail to do this is to invite abuses which may reflect on the entire program.

Another alternative which might be explored is to opt for an interdisciplinary problem-centered approach to instruction. In such a program, the student learns about the various disciplines as a way of acquiring skills to solve self-selected problems. Such an approach requires considerable work on the part of instructional managers and works best with highly motivated students.

Appendix

Student Activity Sheet

Activity Sheet

Date Closed:_____ A.S.No.____

Student: _____

Start Date:_____ Estimated Close Date: _____

Initiator: _____

Goal/Need: ☐ PR ☐ Student

Issue/Concept/Topic, Etc.

Career

Academic

Personal Development

Specific Goals (Behavioral Objectives)

ACTIVITIES: List and Describe

Student Comments & Assessment of the Learning Activity:

Manager Comments and Assessment of the Learning Activity:

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